

WHAT IS CLAIMED IS:

1. A pattern formation method comprising the steps of:
forming a resist film of a chemically amplified resist material; and
forming a resist pattern by developing said resist film with a developer after
5 irradiating, through a mask, said resist film with exposing light having a light component
entering said resist film at the Brewster's angle,
wherein a thickness reduction ratio of said resist pattern to said resist film is 5%
or less.
2. The pattern formation method of Claim 1,
10 wherein said chemically amplified resist material is a positive type, and
a protection ratio that is a ratio of a polymer protected by a protecting group in an
alkali-soluble polymer included in said chemically amplified resist material is 50% or more.
3. The pattern formation method of Claim 2,
wherein said protecting group is a t-butyl group or a t-butyloxycarbonyl group.
- 15 4. The pattern formation method of Claim 2,
wherein said chemically amplified resist material is a positive type, and
an acid generator included in said chemically amplified resist material is an onium
salt.
5. The pattern formation method of Claim 4,
20 wherein said onium salt is triphenylsulfonium trifluoromethanesulfonic acid,
triphenylsulfonium nonafluorobutanesulfonic acid or diphenyliodonium
trifluoromethanesulfonic acid.
6. The pattern formation method of Claim 1,
wherein said chemically amplified resist material is a positive type, and
25 the pattern formation method further comprises, between the step of forming a

resist film and the step of forming a resist pattern, a step of forming, in a surface portion of said resist film, an insoluble layer that is insoluble in said developer.

7. The pattern formation method of Claim 6,

wherein said insoluble layer is formed by supplying an alkaline aqueous solution
5 onto said resist film.

8. The pattern formation method of Claim 7,

wherein said alkaline aqueous solution is a tetramethylammonium hydroxide aqueous solution, a tetraethylammonium hydroxide aqueous solution, a tetra-n-butylammonium hydroxide aqueous solution or a choline aqueous solution.

10 9. The pattern formation method of Claim 1,

wherein said exposing light is UV, KrF excimer laser, ArF excimer laser, F₂ laser, ArKr laser, Ar₂ laser, Kr₂ laser or extreme UV.

10. A pattern formation method comprising the steps of:

forming a resist film of a positive chemically amplified resist material; and

15 forming a resist pattern by developing said resist film with a developer after irradiating, through a mask, said resist film with exposing light having a light component entering said resist film at the Brewster's angle,

wherein said chemically amplified resist material includes a base polymer for generating acid through irradiation with light.

20 11. The pattern formation method of Claim 10,

wherein said acid is carboxylic acid or sulfonic acid.

12. The pattern formation method of Claim 10,

wherein said chemically amplified resist material includes a dissolution inhibitor for generating acid through irradiation with light.

25 13. The pattern formation method of Claim 12,

wherein said acid is carboxylic acid or sulfonic acid.

14. The pattern formation method of Claim 10,

wherein said acid is acrylic acid, methacrylic acid, α -trifluoromethylacrylic acid, vinylsulfonic acid or styrenesulfonic acid.

5 15. The pattern formation method of Claim 10,

wherein said exposing light is UV, KrF excimer laser, ArF excimer laser, F₂ laser, ArKr laser, Ar₂ laser, Kr₂ laser or extreme UV.

16. A pattern formation method comprising the steps of:

forming a resist film of a positive chemically amplified resist material; and

10 forming a resist pattern by developing said resist film with a developer after irradiating, through a mask, said resist film with exposing light having a light component entering said resist film at the Brewster's angle,

wherein said chemically amplified resist material includes a dissolution inhibitor for generating acid through irradiation with light.

15 17. The pattern formation method of Claim 16,

wherein said acid is carboxylic acid or sulfonic acid.

18. The pattern formation method of Claim 16,

wherein said acid is acrylic acid, methacrylic acid, α -trifluoromethylacrylic acid, vinylsulfonic acid or styrenesulfonic acid.

20 19. The pattern formation method of Claim 15,

wherein said exposing light is UV, KrF excimer laser, ArF excimer laser, F₂ laser, ArKr laser, Ar₂ laser, Kr₂ laser or extreme UV.

20. A pattern formation method comprising the steps of:

forming a resist film of a positive chemically amplified resist material; and

25 forming a resist pattern by developing said resist film with a developer after

irradiating, through a mask, said resist film with exposing light having a light component entering said resist film at the Brewster's angle,

wherein said chemically amplified resist material includes an acid

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21. The pattern formation method of Claim 20,

wherein said acid is acetic acid, acrylic acid or formic acid.

22. The pattern formation method of Claim 20,

wherein said exposing light is UV, KrF excimer laser, ArF excimer laser, F₂ laser, ArKr laser, Ar₂ laser, Kr₂ laser or extreme UV.

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